# SNMP

**for 12000/4000 BLCs and Micro DSLAMs**

## User's Guide

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PARADYNE®

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# About This Guide

## Document Purpose and Intended Audience

This guide contains a description of the Simple Network Management Protocol (SNMP) interface for Micro DSLAMs and 4000 and 12000 IP Broadband Loop Carriers (BLCs). It is for users of those devices who require SNMP management in addition to or instead of the web and command line interfaces.

## Document Summary

| Section | Description |
|---|---|
| *Chapter 1, SNMP Overview* | Provides an overview of the SNMP interface implemented in Micro DSLAMs and 4000 and 12000 BLCs. |
| *Chapter 2, MIB Object Identifiers (OIDs)* | Describes the OIDs supported by the SNMP interface. |
| *Chapter 3, SNMP Traps* | Describes the SNMP traps supported. |
| *Index* | Lists key terms, concepts, and sections in alphabetical order. |

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# SNMP Overview

# 1

## Simple Network Management Protocol (SNMP)

SNMP is the standard for management of TCP/IP (Transmission Control Protocol/Internet Protocol) networks and network devices such as Ethernet bridges and routers. This document describes the implementation of SNMP used in:

- AMD8000-12 12-Port ADSL Mini DSLAMs in 4000 and 12000 Broadband Loop Carriers (BLCs)
- BSX8000-5 broadband services switch in 4000 and 12000 BLCs
- MUM200-2 and MUM2000-2 Multiplexer Uplink Modules in 4000 and 12000 BLCs
- SMD2000-12, SMD2000Q-12, and SMD2000G-12 12-Port SDSL Mini DSLAMs
- SμD2011_12T, SμD2011_12E, SμD2003_12T, and SμD2003_12E 12-Port SDSL Micro DSLAMs
- SμD2011_6T, SμD2011_6E, SμD2002_6T, SμD2002_6E 6-Port SDSL Micro DSLAMs
- UIM-10/100 Uplink Interface Module
- UIM-DS3 DS3 Uplink Interface Module
- UIM-E1 E1 Uplink Interface Module
- UIM-E3 E3 Uplink Interface Module
- UIM-T1 T1 Uplink Interface Module

This implementation uses a portion of SNMP v1.0: the MIB-II System Group and Interfaces Group of OIDs. SNMP is uses MIBs (Management Information Bases) sanctioned by the IETF (Internet Engineering Task Force). MIBs are composed of OIDs (Object Identifiers), each of which represents a system configuration or request for data.

You will not be able to manage your DSLAM or BLC via SNMP until you have set the unit IP address, subnet mask, and default gateway. See the *CLI User's Guide* for more information.

# Establishing a Connection to the DSLAM or BLC

You must have a MIB browser installed on your PC in order to utilize the Management Information Base.

If you have already made a direct connection between the BLC or Micro DSLAM and your PC for the purpose of CLI configuration or if you have already configured Inband Management through the CLI, skip to Step 3.

## ▶ Procedure

1. Connect your PC to the Management (MGMT) Port on the front of the Micro DSLAM or on the MUM or BSX faceplate.

**MGMT/Ethernet RJ45 Port Pinouts**

| | | | |
|---|---|---|---|
| Pin 1 | Rx+ | Pin 5 | not used |
| Pin 2 | Rx- | Pin 6 | Tx- |
| Pin 3 | Tx+ | Pin 7 | not used |
| Pin 4 | not used | Pin 8 | not used |

2. If your PC is not already on, turn it on now.
3. Launch your MIB browser and perform any necessary program configurations. Refer to your MIB browser user manual for further information.
4. Download the supported portions of MIB-II from the Internet Engineering Task Force (IETF) web site: www.ietf.org/rfc.html. Once at the site, enter RFC 1213 and click "go". The Micro DSLAMs, MUMs, and BSX support the OIDs of the MIB-II System Group and the MIB-II Interfaces Group (sections 6.3 and 6.4 of RFC 1213) shown in Table 1-1, System and Interfaces Groups. Refer to your MIB browser user manual for instructions on how to compile the MIB-II OIDs into your MIB browser.

**Table 1-1. System and Interfaces Groups**

| System Group | Interfaces Group |
|---|---|
| sysContact* | ifAdminStatus* |
| sysDescr | ifDescr |
| sysLocation* | ifIndex |
| sysName* | ifInDiscards** |
| sysObjectId | ifInErrors** |
| sysServices | ifInNUcastPkts |
| sysUpTime | ifInOctets |
| | ifInUcastPkts |
| | ifInUnknownProtos** |
| | ifLastChange |
| | ifMtu |
| | ifNumber |
| | ifOperStatus |
| | ifOutDiscards** |
| | ifOutErrors** |
| | ifOutNUcastPkts |
| | ifOutOctets |
| | ifOutUcastPkts |
| | ifPhysAddr** |
| | ifQlen** |
| | ifSpecific |
| | ifSpeed |
| | ifType |

* Configurable
** Although these OIDs are supported, SNMP does not have the capability to identify corresponding events. As such, the counter values will show as zero.

5. Contact your technical support representative to obtain the Enterprise MIBs for your Micro DSLAM, MUM, or BSX. Refer to your MIB browser user manual for instructions on how to compile the Enterprise MIBs into your MIB browser.

# Configuring and Managing Data with MIBs

BLC and Micro DSLAM data is accessed and configured through MIB browsers with the use of Object Identifiers, as outlined in Chapter 2, *MIB Object Identifiers (OIDs)*. Actual usage of Object Identifiers (OIDs) varies between different MIB browsers; refer to your MIB browser user manual for specific instruction regarding the entry of OIDs and other qualifying data.

# Default Settings

No configuration is necessary for a Micro DSLAM or BLC to operate at default settings.

## User Access Defaults

| **CLI Username/Password** | | |
|---|---|---|
| ACCESS | USERNAME* | PASSWORD* |
| read only | general | Password |
| read/write | superuser | Password |
| *Usernames and passwords are case sensitive. | | |

| **SNMP Community String** | |
|---|---|
| ACCESS | COMMUNITY STRING* |
| read only | Password |
| read/write | Password |
| *Community strings are case sensitive. | |

## System Defaults

| **IP Address** | |
|---|---|
| MODEL | DEFAULT IP |
| 12000 Slot 13 | 192.168.254.252 |
| 12000 Slot 14 | 192.168.254.253 |
| 4000 Slot 5 | 192.168.254.252 |
| Micro DSLAM | 192.168.254.252 |
| Mini DSLAM | 192.168.254.252 |

| System Parameters | |
|---|---|
| PARAMETER | DEFAULT |
| Gateway | 0.0.0.0 |
| Inband Management | disabled |
| Inband Management VLAN ID | 0 (off) |
| Mgmt (Management) IP Address Filter Range | 0.0.0.0 – 255.255.255.255 (all) |
| Subnet Mask | 255.255.255.0 |
| TFTP (Trivial File Transfer Protocol) | on |
| Uplink DSLAM Interconnection | 1 (neither/off) |
| Web Server (NMS) | enabled |

## Uplink Interface Defaults

| 10/100 Ethernet Uplink | |
|---|---|
| PARAMETER | (non-configurable) |
| Duplex Mode | Auto-Negotiate |
| Speed | Auto-Negotiate |

| T1 Uplink | |
|---|---|
| PARAMETER | DEFAULT |
| Frame Type | ESF (Extended Super Frame) |
| Line Buildout | 0 dB |
| Line Code | B8ZS (Bipolar with 8 Zero Substitution) |

| E1 Uplink | |
|---|---|
| PARAMETER | DEFAULT |
| Frame Type | CRC (Cyclic Redundancy Check) |
| Line Code | HDB3 (High Density Bipolar 3) |

## Circuit Defaults

### Circuit

| PARAMETER | DEFAULT |
|---|---|
| Circ. ID (Circuit Identification) | n/a (no default) |
| IP Range 1 | 0.0.0.0 - 255.255.255.255 |
| IP Range 2 | 0.0.0.0 - 0.0.0.0 |
| Protocol | All (all traffic) |

### VLAN

| PARAMETER | DEFAULT |
|---|---|
| VLAN Range | 0–0 (off) |
| Backbone-VLAN | 0 (off) |
| Pri (VLAN Priority) | 0 (none) |
| Flood | Upl (Uplink) |

## SNMP Trap Defaults

| SNMP Trap Notification | |
|---|---|
| IP ADDRESS | DEFAULT |
| #1 | 0.0.0.0 |
| #2 | 0.0.0.0 |
| #3 | 0.0.0.0 |
| #4 | 0.0.0.0 |

| SNMP Trap Enable/Disable | |
|---|---|
| TRAP | DEFAULT |
| Authentication Trap | enabled |
| Environment Trap | enabled |
| Cold Start Trap | disabled |
| Module/Port Trap | disabled |

# MIB Object Identifiers (OIDs)

# 2

## OID Base

The OID base for all MIBs is 1.3.6.1.4.1.8059.

## Chassis Configuration MIB

The ntntechChassisConfigurationMIB defines the SNMP Application Programming Interface for Multiplexer Uplink Module (MUM), Broadband Switch (BSX), and Micro DSLAM parameter configuration as well as Simple Network Management Protocol (SNMP) parameter configuration.

**Table 2-1. Chassis Configuration MIB (1 of 2)**

| MUM | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Notes (mumCfgNotes) | 1.1.1.1.1.1.1 | Y=user defined | 0-128 octet string | Meant as a scratchpad for the administrator to record such things as Chassis ID or customer name. Cannot exceed 128 alphanumeric characters. Default is blank. |
| Index (mumCfgIndex) | 1.1.1.1.1.1.2.1.1.X | X=1-2 | 32-bit integer | MUM or BSX slot location (set to 1 for micro DSLAMs).<br>1 = 12000 Slot 13, 4000 Slot 5, or Micro DSLAM<br>2 = 12000 Slot 14 |
| IP Address (mumCfgIpAddress) | 1.1.1.1.1.1.2.1.2.X | YYY.YYY.YYY.YYYY = user defined | IP Address | Default when<br>x=1: 192.168.254.252<br>x=2: 192.168.254.253 |
| Subnet Mask (mumCfgSubnetMask) | 1.1.1.1.1.1.2.1.3.X | YYY.YYY.YYY.YYYY = user defined | IP Address | Default: 255.255.255.0 |
| Gateway (mumCfgDefaultGateway) | 1.1.1.1.1.1.2.1.4.X | YYY.YYY.YYY.YYYY = user defined | IP Address | Default: 0.0.0.0 |

**Table 2-1. Chassis Configuration MIB (2 of 2)**

| MUM | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Inband Management (mumCfgInbandMgmt) | 1.1.1.1.1.1.2.1.5.X | Y=1-2 | 32-bit integer | 1=ON<br>2=OFF (default)<br>When ON, allows network access to the BLC or Micro DSLAM via the assigned IP Address, Subnet Mask and Gateway. |
| Inband Management Vlan ID (mumCfgInbandMGMT VlanID) | 1.1.1.1.1.1.2.1.6.X | Y=0-4085 | 32-bit integer | 0=OFF (default)<br>1–4085=user defined<br>Support of 802.1Q VLANs as applicable to inband management traffic only; does not apple to out of band traffic received from the MGMT Port. |
| Interconnection (mumCfgInterConnection) | 1.1.1.1.1.1.2.1.7.X | Y=1-3 | 32-bit integer | 1=neither (default)<br>2=Uplink 1<br>3=Uplink 2<br>4=Uplink 3<br>5=Uplink 4<br>6=Management<br>Allows the Administrator to daisy-chain one BLC to another so that a single router may be used for both. Does not apply to Micro DSLAMs. |

## SNMP Configuration

See Chapter 3, *SNMP Traps* for more detailed information regarding trap configurations.

**Table 2-2. SNMP Configuration MIB (1 of 3)**

| SNMP | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Trap Notice Index (snmpCfgNoticeIndex) | 1.1.1.1.1.1.3.1.1.1.X | X=1-4 | 32-bit integer | Numeric designation of trap notification assignment; up to four may be configured. |
| Trap Notice IP Address (snmpCfgNoticeIp Address) | 1.1.1.1.1.1.3.1.1.2.X | YYY.YYY.YYY.YYYY =user defined | IP Address | Default: 0.0.0.0<br>Designates the IP Address(es) to which trap notifications will be sent. |

**Table 2-2. SNMP Configuration MIB (2 of 3)**

| SNMP | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Authentication Trap (snmpCfgAuthentication TrapState) | 1.1.1.1.1.1.3.2 | Y=1-2 | 32-bit integer | 1=enable (default)<br>2=disable<br>Standard, MIB-II compliant trap. Sends notification whenever an SNMP request is made with an incorrect community string. |
| Fan Trap (snmpCfgFanTrapState) | 1.1.1.1.1.1.3.3 | Y=1-2 | 32-bit integer | 1=enable (default)<br>2=disable<br>Enables or disables the enterprise specific Environmental Fan Trap. Sends notification of any changes in the operational status of chassis fans. |
| Cold Start Trap (snmpCfgColdstartTrap State) | 1.1.1.1.1.1.3.4 | Y=1-2 | 32-bit integer | 1=enable<br>2=disable (default)<br>The trap sends notification for both cold start (power up) and warm start (reboot or reset) occurrences. |
| Link Up/Down Trap (snmpCfgLinkUpDwnTrap State) | 1.1.1.1.1.1.3.5 | Y=1-2 | 32-bit integer | 1=enable<br>2=disable (default)<br>The Link Up/Down Trap is a stardard MIB-II compliant trap that sends notification whenever a port changes operational status. |
| Read/Write Community String (comReadWriteAccess) | 1.1.1.1.1.1.3.6.1 | Y=user defined | 0-15 octet string | User will be allowed to view, as well as set, parameter attributes.<br>NOTE: For security purposes, this is a hidden attribute; the returned octet string for GET requests will be represented by aterisk. |
| Read Only Community String (snmpCfgcomReadOnly Access) | 1.1.1.1.1.1.3.6.2 | Y=user defined | 0-15 octet string | User will be allowed to view, but not set, parameter attributes.<br>NOTE: For security purposes, this is a hidden attribute; the returned octet string for GET requests will be represented by aterisk. |

**Table 2-2. SNMP Configuration MIB (3 of 3)**

| SNMP | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Embedded Web Server (unqEmbHttpWebsrvr State) | 1.1.1.1.1.1.4.1 | Y=1-2 | 32-bit integer | 1=enable (default)<br>2=disable<br>Allows or disallows, access to the Network Management System (NMS). |

# Chassis Status MIB

The ntntechChassisStatusMIB defines the SNMP Application Programming Interface for retrieving MUM, BSX, Micro DSLAM, and Uplink Interface Module (UIM) data.

**Table 2-3. DSLAM or BLC Chassis Status (1 of 2)**

| MUM | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Chassis Type (mumStaChassisType) | 1.1.2.1.1.1.1 | Y=1-4 | 32-bit integer | Chassis model type:<br>1 = 12000<br>2 = 4000<br>3 = Mini DSLAM<br>4 = Micro DSLAM<br>5 = Network Extender<br>6 = 12000E<br>7 = 4000E |
| Fan State (mumStaFanState) | 1.1.2.1.1.1.2 | Y=1-3 | 32-bit integer | Status of chassis fans:<br>1 = On<br>2 = Fault: at least one fan is not functioning<br>3 = Alert: all fans are not functioning |
| Index (mumStaIndex) | 1.1.2.1.1.1.4.1.1.X | X=1-2 | 32-bit integer | DSLAM type or management card location:<br>1 = 12000 Slot 13, 4000 Slot 5, or Micro DSLAM<br>2 = 12000 Slot 14 |
| Mac Address (mumStaMacAddress) | 1.1.2.1.1.1.4.1.2.X | YY.YY.YY.YY.YY.YYY =user defined | 17 octet string | Mac Address of the MUM, BSX, or Micro DSLAM. |

**Table 2-3. DSLAM or BLC Chassis Status (2 of 2)**

| MUM | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Firmware Revision (mumStaFirmWareRev) | 1.1.2.1.1.1.4.1.3.X | Y.YY.YYY=user defined | 7 octet string | Firmware revision of the MUM, BSX, or Micro DSLAM. |
| MUM Type (mumStaType) | 1.1.2.1.1.1.4.1.4.X | Y=22-29, 127-128 | 32-bit integer | MUM or Micro DSLAM model type:<br>14=SNE2040<br>22=SµD2011-12T<br>23=SµD2011-12E<br>24=SµD2003-12T<br>25=SµD2003-12E<br>26=SµD2011-6T<br>27=SµD2011-6E<br>28=SµD2002-6T<br>29=SµD2002-6E<br>127=MUM2000-2<br>128=MUM200S-2<br>137=BSX8000 |

**Table 2-4. UIM Status (1 of 2)**

| UIM and Uplink Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| MUM Index (mumStaUIMMumIndex) | 1.1.2.1.1.1.5.1.1.X .Y | X=1–2<br>Input X and Y (see UIM Index below); returns X. | 32-bit integer | DSLAM type or management card location:<br>1 = 12000 Slot 13, 4000 Slot 5, or Micro DSLAM<br>2 = 12000 Slot 14 |
| UIM Index (mumStaUIMIndex) | 1.1.2.1.1.1.5.1.2.X .Y | Y=1–4<br>Input X and Y (see MUM Index above); returns Y. | 32-bit integer | 1=UIM Port 1, Uplink Port 1 Micro DSLAM Port 2<br>2=UIM Port 2, Uplink Port 2 Micro DSLAM Port 3<br>3=Uplink Port 3, Micro DSLAM Port 4<br>4=Uplink Port 4, Micro DSLAM Port 5<br>NOTE: Micro DSLAM Uplink Ports 1–4 are labeled as Ports 2–5; Port 1 is the Management Port. |

**Table 2-4. UIM Status (2 of 2)**

| UIM and Uplink Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| UIM Type (mumStaUIMType) | 1.1.2.1.1.1.5.1.3.X .Y | Z=1–5* | 32-bit integer | UIM model type or Micro DSLAM Uplink Port Type:<br>1=UIM-10/100, Micro DSLAM 10/100 Uplink Port<br>2=UIM-T1, Micro DSLAM T1 Uplink Port<br>3=UIM-DS3, Micro DSLAM DS3 Uplink Port<br>4=UIM-E1, Micro DSLAM E1 Uplink Port<br>5=UIM-E3, Micro DSLAM E3 Uplink Port<br>*For the MUM2000-2 only, Z=1–3:<br>1=UIM-10/100<br>2=UIM-T1 and UIM-E1<br>3=UIM-T3 and UIM-E3 |
| UIM Link Status (mumStaUIMLinkState) | 1.1.2.1.1.1.5.1.4.X .Y | Z=1–3 | 32-bit integer | UIM or Micro DSLAM Uplink Port link status:1=link2=no link3=fault |

**Table 2-5. Management Port Status**

| MGMT Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| MUM Index (mumStaMgmtPortMum Index) | 1.1.2.1.1.1.6.1.1.X | X=1–2 | 32-bit integer | DSLAM type or management card location:<br>1 = 12000 Slot 13, 4000 Slot 5, or Micro DSLAM<br>2 = 12000 Slot 14 |
| MGMT Port Type (mumStaMgmtPortType) | 1.1.2.1.1.1.6.1.2.X | Y=1 | 32-bit integer | MGMT Port type:<br>1=management |
| MGMT Port Link Status (mumStaMgmtPortLink State) | 1.1.2.1.1.1.6.1.3.X | Y=1–3 | 32-bit integer | MGMT Port link status:<br>1=link<br>2=no link<br>3=fault |

# Port Configuration MIB

The ntntechAccessModuleConfigurationMIB defines the SNMP Application Programming Interface for parameter configuration of individual ports on interface modules and Micro DSLAMs.

**Table 2-6. Interface Module and Micro DSLAM Port Configuration (1 of 3)**

| Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Slot Index (ifCfgSlotIndex) | 1.2.1.1.1.2.1.1.1.X.Y | X=1–12<br>Input X and Y (see Port Index below); returns X. | 32-bit integer | Interface Module slot number of port being configured:<br>12000=1–12<br>4000=1–4<br>Micro DSLAM=1 |
| Port Index (ifCfgPortIndex) | 1.2.1.1.1.2.1.1.2.X.Y | Y=1–48<br>Input X and Y (see Slot Index above); returns Y. | 32-bit integer | Port number of the port being configured. The range of possible port numbers varies dependent upon the interface module or Micro DSLAM model type. |
| Circuit ID (ifCfgPortCircuitID) | 1.2.1.1.1.2.1.1.3.X.Y | Z=user defined | 0-15 octet string | Circuit ID number as assigned to a port on an interface module or Micro DSLAM by the user. Default is blank. |
| IP Filter Range 1start value (ifCfgPortFltrIp1Start) | 1.2.1.1.1.2.1.1.4.X.Y | ZZZ.ZZZ.ZZZ.ZZZZ= user defined | IP Address | Default: 0.0.0.0<br>Starting IP Address for the first IP filter range; the default start and end values indicate ALL IP Addresses are allowed. |
| IP Filter Range 1end value (ifCfgPortFltrIp1End) | 1.2.1.1.1.2.1.1.5.X.Y | ZZZ.ZZZ.ZZZ.ZZZZ= user defined | IP Address | Default: 255.255.255.255<br>Ending IP Address for the first IP filter range; the default start and end values indicate ALL IP Addresses are allowed. |
| IP Filter Range 2start value (ifCfgPortFltrIP2Start) | 1.2.1.1.1.2.1.1.6.X.Y | ZZZ.ZZZ.ZZZ.ZZZZ= user defined | IP Address | Default: 0.0.0.0<br>Starting IP Address for the second IP filter range; the default start and end values indicate the second IP filter range is not in use. |

**Table 2-6. Interface Module and Micro DSLAM Port Configuration (2 of 3)**

| Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| IP Filter Range 2start value (ifCfgPortFltrIp2Start) | 1.2.1.1.1.2.1.1.7.X.Y | ZZZ.ZZZ.ZZZ.ZZZZ= user defined | IP Address | Default: 0.0.0.0<br>Ending IP Address for the second IP filter range; the default start and end values indicate the second IP filter range is not in use. |
| Backbone VLAN* (ifCfgPortBackboneVlan) | 1.2.1.1.1.2.1.1.8.X.Y | Z=0–4085 | 32-bit integer | 0=OFF (default)<br>1–4085=user defined<br>The primary identifier used by routers with backbone capability in directing traffic to appropriate network clouds. Cannot be used independently; must be used in conjunction with standard VLAN tags. |
| VLAN Priority* (ifCfgPortVlanPriority) | 1.2.1.1.1.2.1.1.9.X.Y | Z=0–7 | 32-bit integer | 0=no priority (default)<br>1–7=user defined (1 is lowest priority, 7 highest)<br>BLCs and Micro DSLAMs do not currently support VLAN Priority. Priority is configurable however; packets may be designated with a priority for use by other equipment through which the packets might pass. The indication is that ports with a higher priority may scavenge bandwidth from lower priority ports if, or when, bandwidth becomes scarce. |
| * See the *CLI User's Guide* for specific rules and compliance. | | | | |

**Table 2-6. Interface Module and Micro DSLAM Port Configuration (3 of 3)**

| Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Flood Mode (ifCfgPortFloodMde) | 1.2.1.1.1.2.1.1.10.X.Y | Z=1–2 | 32-bit integer | 1=Multiplexer Uplink (default).<br>Unknown unicasts or broadcasts are flooded only to the BLC's or Micro DSLAM's uplink interface ports within the sender's VLAN range, preventing communication between access ports without the intervention of an upstream device such as a router.<br>2=VLAN.<br>Unknown unicasts or broadcasts are flooded to any of the BLC or Micro DSLAM's uplink interface ports or access ports within the sender's VLAN range. |
| Protocol (ifCfgPortIpFltProtocol) | 1.2.1.1.1.2.1.1.11.X.Y | Z=1-2 | 32-bit integer | 1=ALL traffic (default)<br>2=TCP/IP traffic only |
| Reset (ifCfgPortReset) | 1.2.1.1.1.2.1.1.12.X.Y | Z=1-2 | 32-bit integer | 1=reset<br>2=no reset (default)<br>Upon entry of value 1 all port statistics are reset to zero and recalculation begins. Because port statistics equal zero only at the instance of reset, this value will always be returned as 2. |

**Table 2-7. VLAN ID Configuration (1 of 2)**

| VLAN | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| VLAN Slot Index (ifCfgIfSlotIndex) | 1.2.1.1.1.2.2.1.1.X.Y.Z | X=1–12<br>Input X, Y and Z (see Port Index and VLAN Index below); returns X. | 32-bit integer | Interface module slot number of port for which you wish to set VLAN tags:<br>12000=1–12<br>4000=1–4<br>Micro DSLAM=1 |

**Table 2-7. VLAN ID Configuration (2 of 2)**

| VLAN | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| VLAN Port Index (ifCfgIfPortIndex) | 1.2.1.1.1.2.2.1.2.X.Y.Z | Y=1–48<br>Input X, Y and Z (see Slot Index above and VLAN Index below); returns Y. | 32-bit integer | Port number of the port for which you wish to set VLAN tags. The range of possible port numbers varies dependent upon the interface module or Micro DSLAM model type. |
| VLAN Index (ifCfgVLANIndex) | 1.2.1.1.1.2.2.1.3.X.Y.Z | Z=1–10<br>Input X, Y and Z (see Slot Index and Port Index above); returns Z. | 32-bit integer | Numeric designation of VLAN tag assignment; up to 10 may be configured. |
| VLAN ID Start* (ifCfgVLANIdStart) | 1.2.1.1.1.2.2.1.4.X.Y.Z | A=0–4085 | 32-bit integer | The start value of a VLAN ID Range assigned to the designated port. |
| VLAN ID End* (ifCfgVLANIdEnd) | 1.2.1.1.1.2.2.1.5.X.Y.Z | A=0–4085 | 32-bit integer | The end value of a VLAN ID Range assigned to the designated port. |
| * See the *CLI User's Guide* for specific rules and compliance. | | | | |

# Interface Module and Micro DSLAM Port Configuration MIB

The ntntechAccessModuleConfigurationMIB also defines the SNMP Application Programming Interface for port configurations specific to IDSL, SDSL, ADSL, T1 and E1 technology as applies to Interface Modules and Micro DSLAMs.

**Table 2-8. ADSL Configuration (1 of 4)**

| ADSL | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Slot Index (ifCfgAdslSlotIndex) | 1.2.1.1.1.2.3.1.1.X.Y | X=1–12<br>Input X and Y (see Port Index below); returns X. | 32-bit integer | Defines interface module slot number of port being configured:<br>12000=1–12<br>40000=1–4 |
| Port Index (ifCfgAdslPortIndex) | 1.2.1.1.1.2.3.1.2.X.Y | Y=1–48<br>Input X and Y (see Slot Index above); returns Y. | 32-bit integer | Port number of port being configured. The range of possible port numbers varies dependent upon the interface module model type. |
| Port Mode (ifCfgAdslPortMode) | 1.2.1.1.1.2.3.1.3.X.Y | Z=1–3 | 32-bit integer | 1=ON<br>2=OFF<br>3=Adaptive (default)<br>Method by which a port defines its bandwidth. A port set to Adaptive Mode will automatically train up to the best possible speed supported by both the equipment and the copper pair. Port Mode ON indicates both upstream and downstream bandwidths must be specified manually. OFF indicates the port has been administratively turned off. |

**Table 2-8. ADSL Configuration (2 of 4)**

| ADSL | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| VPI/VCI Detect (ifCfgPortAdslVpiVci Detect) | 1.2.1.1.1.2.3.1.4.X.Y | Z=1–2 | 32-bit integer | 1=ON (default)<br>2=OFF<br>Method by which VPI/VCI (Virtual Path Identifier/Virtual Channel Identifier) values will be set. A port set to VPI/VCI Detect ON will auto-detect the line VPI/VCI values for that port starting with the defaults VPI=0 and VCI=35. If no ATM cells are detected at that setting, the port will automatically "snoop" the line to determine which VPI/VCI setting the remote ADSL modem is transmitting on and then set itself accordingly. A port set to OFF requires VPI and VCI values to be entered manually for that port (see VPI and VCI below). |
| Data Reception Rate (ifCfgAdslRxRate) | 1.2.1.1.1.2.3.1.5.X.Y | Z=1–32 | 32-bit integer | ADSL upstream speed runs from 32 kbps to 1024 kbps. Current port speed equals Z x 32 kbps. For example, when Z=24, upstream speed is 768 kbps (24 x 32 kbps).<br>NOTE: A zero (0) returned via a GET command indicates the port is in Adaptive Mode (see Port Mode above) and is experiencing linkdown. |
| Data Transmission Rate (ifCfgAdslTxRate) | 1.2.1.1.1.2.3.1.6.X.Y | Z=1–252 | 32-bit integer | ADSL downstream speed runs from 32 kbps to 8064 kbps. Current port speed equals Z x 32 kbps. For example, when Z=252, downstream speed is 8064 kbps (252 x 32 kbps).<br>NOTE: A zero (0) returned via a GET command indicates the port is in Adaptive Mode (see Port Mode above) and is experiencing linkdown. |

**Table 2-8. ADSL Configuration (3 of 4)**

| ADSL | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Frame Type (ifCfgPortAdslFrameType) | 1.2.1.1.1.2.3.1.7.X.Y | Z=1–2 | 32-bit integer | 1=1483LLC Logic Link Control (default)<br>2=1483VCM Virtual Circuit Multiplexing<br>Frame type is the ADSL data encapsulation method for carrying traffic over an ATM network as defined by RFC 1483. |
| VPI (ifCfgPortAdslVpi) | 1.2.1.1.1.2.3.1.8.X.Y | Z=0–255 | 32-bit integer | Default=0 when VPI/VCI Detect is set to ON (see VPI/VCI Detect above)<br>Virtual Path Identifier (VPI) is an 8-bit field in ATM cell headers that routes the cell over the correct Virtual Path. When manually assigning VPIs, each port must be assigned the same VPI as the remote ADSL modem to which it is being connected. |
| VCI (ifCfgPortAdslVci) | 1.2.1.1.1.2.3.1.9.X.Y | Z=0–65535 | 32-bit integer | Default=35 when VPI/VCI Detect is set to ON (see VPI/VCI Detect above)<br>Virtual Channel Identifier (VCI) is a 16-bit field in ATM cell headers which identifies the Virtual Channel, within the Virtual Path, over which a stream of cells will travel. When manually assigning VCIs, each port must be assigned the same VCI as the remote ADSL modem to which it is being connected. |

**Table 2-8. ADSL Configuration (4 of 4)**

| ADSL | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Standard Mode (ifCfgPortAdslStandard Mde) | 1.2.1.1.1.2.3.1.10.X.Y | Z=1–5, 255 | 32-bit integer | 1=T1.413<br>2=G.lite<br>3=G.DMT<br>4=Multimode (default)<br>5=Alcatel<br>255=no link (standard mode is unknown due to port linkdown)<br>Multimode allows each port to detect the operational mode of the remote ADSL modem to which it is connected and configure itself accordingly. G.DMT, T1.413, and Alcatel are all full rate modes which require an inline splitter to be installed both at the Central Office and at the customer premises. G.lite requires a splitter at the Central Office and microfilters at the customer premises. |

**Table 2-9. IDSL Configuration (1 of 2)**

| IDSL | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Slot Index (ifCfgIdslSlotIndex) | 1.2.1.1.1.2.4.1.1.X.Y | X=1–12<br>Input X and Y (see Port Index below); returns X. | 32-bit integer | Interface module slot number of port being configured:<br>12000=1–12<br>40000=1–4 |
| Port Index (ifCfgIdslPortIndex) | 1.2.1.1.1.2.4.1.2.X.Y | Y=1–48<br>Input X and Y (see Slot Index above); returns Y. | 32-bit integer | Port number of the IDSL port being configured. The range of possible port numbers varies dependent upon the interface module model type. |

**Table 2-9. IDSL Configuration (2 of 2)**

| IDSL | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Speed (ifCfgPortIdslRxTxRate) | 1.2.1.1.1.2.4.1.3.X.Y | Z=0–2, 255 | 32-bit integer | IDSL data receive and transmit rates:<br>1=128 kbps<br>2=144 kbps (default)<br>255=port off<br>NOTE: A zero (0) returned via a GET command indicates a problematic port. |

**Table 2-10. SDSL Configuration (1 of 2)**

| SDSL | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Slot Index (ifCfgSdslSlotIndex) | 1.2.1.1.1.2.5.1.1.X.Y | X=1–12<br>Input X and Y (see Port Index below); returns X. | 32-bit integer | Interface module slot number of port being configured:<br>12000=1-12<br>4000=1-4<br>Micro DSLAM=1 |
| Port Index (ifCfgSdslPortIndex) | 1.2.1.1.1.2.5.1.2.X.Y | Y=1–48<br>Input X and Y (see Port Index above); returns Y. | 32-bit integer | Port number of SDSL port being configured. The range of possible port numbers varies dependent upon the interface module or Micro DSLAM model type. |

**Table 2-10. SDSL Configuration (2 of 2)**

| SDSL | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Speed (ifCfgPortSdslRxTxRate) | 1.2.1.1.1.2.5.1.3.X.Y | Z=0–10, 255 | 32-bit integer | SDSL data receive and transmit rates. Default is 272 kbps.<br>1=144 kbps<br>2=272 kbps<br>3=400 kbps<br>4=528 kbps<br>5=784 kbps<br>6=1040 kbps<br>7=1168 kbps<br>8=1552 kbps<br>9=2064 kbps<br>10=2320 kbps<br>255=port off<br>Possible SDSL Rx/Tx data return rates vary dependent upon the interface module or Micro DSLAM model type and may not include all of the bandwidth rates listed above.<br>NOTE: A zero (0) returned via a GET command indicates a problematic port. |
| Line Code (ifCfgPortSdslLineCode) | 1.2.1.1.1.2.5.1.4.X.Y | Z=1–3 | 32-bit integer | SDSL Line Coding options:<br>1=CAP (default) (Carrierless Amplitude and Phase Modulation)<br>2=2B1Q (Two Binary, One Quaternary)<br>3=TC/PAM (G.SHDSL-Multirate Symmetric Single-pair DSL)<br>Not all SDSL products have a line coding option; some SDSL models carry only one type of line coding (customer specified) per unit and cannot be configured otherwise through MIBs. |

**Table 2-11. T1 Configuration (1 of 2)**

| T1 | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Slot Index (ifCfgT1SlotIndex) | 1.2.1.1.1.2.6.1.1.X.Y | X=1–12<br>Input X and Y (see Port Index below); returns X. | 32-bit integer | Interface module slot number of port being configured.<br>12000=1–12<br>4000=1–4 |
| Port Index (ifCfgT1PortIndex) | 1.2.1.1.1.2.6.1.2.X.Y | Y=1–48<br>Input X and Y (see Slot Index above); returns Y. | 32-bit integer | Port number of T1 port being configured. The range of possible port numbers varies dependent upon the interface module model type. |
| Speed (ifCfgPortT1RxTxRate) | 1.2.1.1.1.2.6.1.3.X.Y | Z=0–8, 255 | 32-bit integer | T1 data receive and transmit rates:<br>1=192 kbps<br>2=384 kbps<br>3=576 kbps<br>4=768 kbps<br>5=960 kbps<br>6=1152 kbps<br>7=1344 kbps<br>8=1536 kbps<br>255=port off<br>NOTE: A zero (0) returned via a GET command indicates a problematic port. |
| Frame Type (ifCfgPortT1FrameType) | 1.2.1.1.1.2.6.1.4.X.Y | Z=1–2 | 32-bit integer | 1=Extended Super Frame (ESF-default)<br>2=Super Frame (SF/D4)<br>Frame type is the T1 data encapsulation method. SF assembles data into 12-frame transmission clusters, ESF assembles data into 24-frame transmission clusters and also integrates Facilities Data Link (FDL) and Cyclic Redundancy Check (CRC). |

**Table 2-11. T1 Configuration (2 of 2)**

| T1 | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Line Code (ifCfgPortT1LineCode) | 1.2.1.1.1.2.6.1.5.X.Y | Z=1–2 | 32-bit integer | 1=Bipolar with 8 Zero Substitution (B8ZS-default)<br>2=Alternate Mark Inversion (AMI)<br>Line Code is the T1 mode of transmission per the ITU-T G.703 Standards for Transmission Facilities. B8ZS uses bipolar vioations to guarantee there will always be pulses in the line. AMI alternates positive and negative pulses. |
| Line Buildout (ifCfgPortT1TxBuildOut) | 1.2.1.1.1.2.6.1.6.X.Y | Z=1–4 | 32-bit integer | 1 = 0 dB (default)<br>2 = –7.5 dB<br>3 = –15 dB<br>4 = –22 db<br>Line Buildout decreases the transmit amplitude of the T1 signal to prevent it from becoming too strong (across short distances) for repeaters, switches and other T1 transmission equipment. Receivers on most newer T1 equipment can automatically adjust for incoming amplitude, allowing them to run at 0 db (default), regardless of distance. |
| Clock Source (ifCfgPortT1ClockSrc) | 1.2.1.1.1.2.6.1.7.X.Y | Z=1–2 | 32-bit integer | 1=Local (default)<br>2=Loop<br>The clock source can be set to originate locally via an oscillator onboard the interface module or it can be set to originate with the remote T1 modem across the loop. |

**Table 2-12. E1 Configuration (1 of 2)**

| E1 | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Slot Index (ifCfgE1SlotIndex) | 1.2.1.1.1.2.7.1.1.X.Y | X=1–12<br>Input X and Y (see Port Index below); returns X. | 32-bit integer | Interface module slot number of port being configured.<br>12000=1–12<br>4000=1–4 |
| Port Index (ifCfgE1PortIndex) | 1.2.1.1.1.2.7.1.2.X.Y | Y=1–48<br>Input X and Y (see Slot Index above); returns Y. | 32-bit integer | Port number of E1 port being configured. The range of possible port numbers varies dependent upon the interface module model type. |
| Speed (ifCfgPortE1RxTxRate) | 1.2.1.1.1.2.7.1.3.X.Y | Z=0–8, 255 | 32-bit integer | E1 data receive and transmit rates:<br>1=256 kbps<br>2=512 kbps<br>3=768 kbps<br>4=1024 kbps<br>5=1280 kbps<br>6=1536 kbps<br>7=1792 kbps<br>8=1984 kbps<br>255 = port off<br>NOTE: A zero (0) returned via a GET command indicates a problematic port. |
| Frame Type (ifCfgPortE1FrameType) | 1.2.1.1.1.2.7.1.4.X.Y | Z=1–2 | 32-bit integer | 1=Cyclic Redundancy Check (CRC-default)<br>2=No CRC<br>Frame type is the E1 data encapsulation method; CRC detects line errors and scrutinizes data integrity across the E1 line by appending a character to the end of the data block. If the remote modem does not find the correct character when it receives the data block, it will request retransmission. |

**Table 2-12. E1 Configuration (2 of 2)**

| E1 | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Line Code (ifCfgPortE1LineCode) | 1.2.1.1.1.2.7.1.5.X.Y | Z=1–2 | 32-bit integer | 1=High Density Binary 3 (HDB3-default)<br>2=Alternate Mark Inversion (AMI)<br>Line Code is the E1 mode of transmission per the ITU-T G.703 Standards for Transmission Facilities. HDB3 uses bipolar violations to guarantee there will always be pulses in the line. AMI alternates positive and negative pulses. |
| Clock Source (ifCfgPortE1ClockSrc) | 1.2.1.1.1.2.7.1.6.X.Y | Z=1–2 | 32-bit integer | 1=Local (default)<br>2=Loop<br>The clock source can be set to originate locally via an oscillator onboard the interface module or it can be set to originate with the remote E1 modem across the loop. |

# Module Status MIB

The ntntechAccessModuleStatusMIB defines the SNMP Application Programming Interface for retrieving interface module or Micro DSLAM configuration statistics.

**Table 2-13. Interface Module and Micro DSLAM Module Status (1 of 2)**

| Module | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Module Count (ifStaCount) | 1.2.2.1.1.1.1 | Y=0–12 | 32-bit integer | The number of interface modules in a BLC.<br>12000=0–12<br>4000=0–4<br>Although Micro DSLAMs have no interface modules, the OID will return a Module Count value of 1. |
| Slot Index (ifStaSlotIndex) | 1.2.2.1.1.1.2.1.1.X | X=1–12<br>Input X; returns X. | 32-bit integer | The slot number location of the interface module for which statistics are being sought. Micro DSLAMs will return a value of 1. |

**Table 2-13. Interface Module and Micro DSLAM Module Status (2 of 2)**

| Module | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Module Type (ifStaType) | 1.2.2.1.1.1.2.1.2.X | Y=as listed | 32-bit integer | Interface module or Micro DSLAM model type:<br>1=IAM144-12<br>2=SAM1000-12<br>3=TAM1500-12<br>4=SAM2000-12<br>5=EAM2000-12<br>6=SIM2000-24<br>9=SAM2000Q-12<br>10=AAM8000-12<br>14=SAM2000G-12<br>15=SAM2000V-12<br>16=SAM2000QV-12<br>17=SAM2000GV-12<br>18=SIM2000-12<br>20=SIM2000V-24<br>21=SIM2000V-12<br>22=SµD2011-12T<br>23=SµD2011-12E<br>24=SµD2003-12T<br>25=SµD2003-12E<br>26=SµD2011-6T<br>27=SµD2011-6E<br>28=SµD2002-6T<br>29=SµD2002-6E<br>131=Aµd8000-12 |
| Firmware Revision (ifStaFirmwareRev) | 1.2.2.1.1.1.2.1.3.X | Y.YY.YY | 7 octet string | Current Firmware revision of the interface module or Micro DSLAM. |

# Port Status MIB

The ntntechAccessModuleStatusMIB also defines the SNMP Application Programming Interface for retrieving configuration statistics for each individual port. Syntax data presented in the following table is defined as follows.

## NtnCounter32

NtnCounter32 is defined as 0–4294967295, an increasing non-negative integer.

The counter will start over from zero under the following conditions: the counter has reached maximum value, the MUM or BSX is removed from a BLC, the Reset Button is depressed on a Micro DSLAM, or statistics are reset by way of the CLI CLEAR_NVRAM or the ifStaModStaPortReset OID.

## NtnGauge32

NtnGauge32 is defined as 0–4294967295, a non-negative integer capable of increasing or decreasing between the minimum and maximum values.

The gauge will remain at maximum value whenever the information being modeled is greater than or equal to the maximum value. If the information being modeled once again falls below the maximum value, the gauge value will decrease as well. Percentage calculations will restart under the following conditions: the MUM or BSX is removed from a BLC, the Reset Button is depressed on a Micro DSLAM, or statistics are reset by way of the CLI CLEAR_NVRAM or the ifStaModStaPortReset OID.

## NtnTimeTicks

NtnTimeTicks is defined as 0–4294967295, an increasing non-negative integer representing seconds.

The counter will pause when the link is lost and will resume from the same point once link is reestablished. The counter will start over from zero under the following conditions: the counter has reached maximum value, the MUM or BSX is removed from a BLC, the Reset Button is depressed on a Micro DSLAM, or statistics are reset by way of the CLI CLEAR_NVRAM or the ifStaModStaPortReset OID.

**Table 2-14. Interface Module and Micro DSLAM Port Status (1 of 3)**

| Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Slot Index (ifStaPortSlotIndex) | 1.2.2.1.1.1.3.1.1.X.Y | X=1–12<br>Input X and Y (see Port Index below); returns X. | 32-bit integer | The slot number location of the interface module for which statistics are being sought. Micro DSLAMs will return a value of 1. |
| Port Index (ifStaPortPortIndex) | 1.2.2.1.1.1.3.1.2.X.Y | Y=1–48<br>Input X and Y (see Slot Index above); returns Y. | 32-bit integer | The port number for which statistics are being sought. The range of possible port numbers varies dependent upon the interface module or Micro DSLAM model type. |
| Firmware Revision (ifStaPortFirmwareRev) | 1.2.2.1.1.1.3.1.3.X.Y | Z.ZZ.ZZ | 7-octet string | Firmware Revision of the specified port. |
| Link Status (ifStaPortLinkState) | 1.2.2.1.1.1.3.1.4.X.Y | Z=1-5 | 32-bit integer | Port link status:<br>1=Link Up<br>2=Link Down<br>3=Loop Back<br>4=Defect<br>5=Disabled |
| Non-Unicast WAN Rx Utilization (ifStaPortRxWanNUCast Util) | 1.2.2.1.1.1.3.1.5.X.Y | Z% | 32-bit integer NtnCounter32 | Utilization percentage for Non-Unicast WAN traffic reception across the specified port. |
| Non-Unicast WAN Rx Rate (ifStaPortRxWanNUCastRate) | 1.2.2.1.1.1.3.1.6.X.Y | Z kbps | 32-bit integer NtnGauge32 | CURRENT Non-Unicast WAN reception bandwidth of specified port. |
| Maximum Non-Unicast WAN Rx Rate (ifStaPortRxWanNUCastMax Rate) | 1.2.2.1.1.1.3.1.7.X.Y | Z kbps | 32-bit integer NtnGauge32 | MAXIMUM Non-Unicast WAN reception bandwidth of specified port. |
| Average Non-Unicast WAN Rx Rate (ifStaPortRxWanNUCastAve Rate) | 1.2.2.1.1.1.3.1.8.X.Y | Z kbps | 32-bit integer NtnGauge32 | AVERAGE Non-Unicast WAN reception bandwidth of specified port. |
| Non-Unicast WAN Tx Utilization (ifStaPortTxWanNUCastUtil) | 1.2.2.1.1.1.3.1.9.X.Y | Z% | 32-bit integer NtnCounter32 | Utilization PERCENTAGE for Non-Unicast WAN traffic transmission across specified port. |
| Non-Unicast WAN Tx Rate (ifStaPortTxWanNUCastRate) | 1.2.2.1.1.1.3.1.10.X.Y | Z kbps | 32-bit integer NtnGauge32 | CURRENT Non-Unicast WAN transmission bandwidth of specified port. |

**Table 2-14. Interface Module and Micro DSLAM Port Status (2 of 3)**

| Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Maximum Non-Unicast WAN Tx Rate (ifStaPortTxWanNUCastMax Rate) | 1.2.2.1.1.1.3.1.11.X.Y | Z kbps | 32-bit integer NtnGauge32 | MAXIMUM Non-Unicast WAN transmission bandwidth of the specified port. |
| Average Non-Unicast WAN Tx Rate (ifStaPortTxWanNUCastAve Rate) | 1.2.2.1.1.1.3.1.12.X.Y | Z kbps | 32-bit integer NtnGauge32 | AVERAGE Non-Unicast WAN transmission bandwidth of the specified port. |
| Unicast WAN Rx Utilization (ifStaPortRxWanUCastUtil) | 1.2.2.1.1.1.3.1.13.X.Y | Z% | 32-bit integer NtnCounter32 | Utilization PERCENTAGE for Unicast WAN traffic reception across specified port. |
| Unicast WAN Rx Rate (ifStaPortRxWanUCastRate) | 1.2.2.1.1.1.3.1.14.X.Y | Z kbps | 32-bit integer NtnGauge32 | CURRENT Unicast WAN reception bandwidth of the specified port. |
| Maximum Unicast WAN Rx Rate (ifStaPortRxWanUCastMax Rate) | 1.2.2.1.1.1.3.1.15.X.Y | Z kbps | 32-bit integer NtnGauge32 | MAXIMUM Unicast WAN reception bandwidth of the specified port. |
| Average Unicast WAN Rx Rate (ifStaPortRxWanUCastAve Rate) | 1.2.2.1.1.1.3.1.16.X.Y | Z kbps | 32-bit integer NtnGauge32 | AVERAGE Unicast WAN reception bandwidth of the specified port. |
| Unicast WAN Tx Utilization (ifStaPortTxWanUCastUtil) | 1.2.2.1.1.1.3.1.17.X.Y | Z% | 32-bit integer NtnCounter32 | Utilization PERCENTAGE for Unicast WAN traffic transmission across specified port. |
| Unicast WAN Tx Rate (ifStaPortTxWanUCastRate) | 1.2.2.1.1.1.3.1.18.X.Y | Z kbps | 32-bit integer NtnGauge32 | CURRENT Unicast WAN transmission bandwidth of the specified port. |
| Maximum Unicast WAN Tx Rate (ifStaPortTxWanUCastMax Rate) | 1.2.2.1.1.1.3.1.19.X.Y | Z kbps | 32-bit integer NtnGauge32 | MAXIMUM Unicast WAN transmission bandwidth of the specified port. |
| Average Unicast WAN Tx Rate (ifStaportTxWanUCastAve Rate) | 1.2.2.1.1.1.3.1.20.X.Y | Z kbps | 32-bit integer NtnGauge32 | AVERAGE Unicast WAN transmission bandwidth of the specified port. |
| Total WAN Rx Utilization (ifStaPortTotRxWanPercent Util) | 1.2.2.1.1.1.3.1.21.X.Y | Z% | 32-bit integer NtnCounter32 | Utilization PERCENTAGE for total WAN traffic reception across specified port. |
| Total WAN Rx Rate (ifStaPortTotRxWanRate) | 1.2.2.1.1.1.3.1.22.X.Y | Z kbps | 32-bit integer NtnGauge32 | CURRENT total WAN reception bandwidth of the specified port. |

**Table 2-14. Interface Module and Micro DSLAM Port Status (3 of 3)**

| Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Total WAN Tx Utilization (ifStaPortTotTxWanPercent Util) | 1.2.2.1.1.1.3.1.23.X.Y | Z% | 32-bit integer NtnCounter32 | Utilization PERCENTAGE for total WAN traffic transmission across specified port. |
| Total WAN Tx Rate (ifStaPortTotTxWanRate) | 1.2.2.1.1.1.3.1.24.X.Y | Z kbps | 32-bit integer NtnGauge32 | CURRENT total WAN transmission bandwidth of the specified port. |
| Total Port Up Time (ifStaPortTotUpTime) | 1.2.2.1.1.1.3.1.25.X.Y | Z seconds | 32-bit integer NtnTimeTicks | Total port up time (from time of initial link or last reset to time of OID up time request). |
| Total Port Down Time (ifStaPortTotDwnTime) | 1.2.2.1.1.1.3.1.26.X.Y | Z seconds | 32-bit integer NtnTimeTicks | Total port down time (from time of shut down or lost link to time of OID down time request). |

# Network Management System (NMS) Trap MIB

The ntntechNMSTrapsMIB defines the SNMP Application Programming Interface for notification of IP DSLAM enterprise specific traps.

This MIB does not apply to Micro DSLAMs.

**Table 2-15. Environmental and Inventory Trap Status (1 of 2)**

| Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Fan Trap (envFanTrap) | 1.3.1.1.1.1.0.1 | X=1 | 32-bit integer | There has been a change in the operational status of one of the four chassis fans; linked to the Fan State OID (see *Chassis Status MIB* on page 2-4). |
| Module Present Trap (invIfModPresentTrap) | 1.3.1.1.1.2.0.1 | X=1–12<br>Y=as listed | 32-bit integer | A chassis slot which was previously vacant, now houses an interface module.<br>X=slot number location<br>12000=1–12<br>4000=1–4<br>Y=interface module model type:<br>1=IAM144-12<br>2=SAM1000-12<br>3=TAM1500-12<br>4=SAM2000-12<br>5=EAM2000-12<br>6=SIM2000-24<br>9=SAM2000Q-12<br>10=AAM8000-12<br>14=SAM2000G-12<br>15=SAM2000V-12<br>16=SAM2000QV-12<br>17=SAM2000GV-12<br>18=SIM2000-12<br>20=SIM2000V-24<br>21=SIM2000V-12 |

**Table 2-15. Environmental and Inventory Trap Status (2 of 2)**

| Port | OID | Input/Return Values | Syntax | Notes and Definitions |
|---|---|---|---|---|
| Module Removed Trap (invIfModRemovedTrap) | 1.3.1.1.1.2.0.2 | X=1–12<br>Y=as listed above | 32-bit integer | A chassis slot which previously housed an interface module, is now housing an interface module of a different model type or has been vacant for at least 40 seconds.<br>X=slot number location<br>12000=1–12<br>4000=1–4<br>Y=interface module model type (of the module which was removed). As listed above for the Module Present Trap. |

# SNMP Traps

# 3

## Function of SNMP Traps

SNMP traps are designed to send warnings or error messages to a select IP address (or addresses) for defined sets of events that could occur independent, or regardless, of user actions. These traps are all-or-none settings: when a trap is enabled, it is enabled for every port on the BLC or Micro DSLAM. Likewise, when a trap is disabled, it is disabled for every port on the BLC or Micro DSLAM. SNMP Trap settings cannot be configured with the CLI. They must be configured through your MIB browser.

## SNMP Target IP Addresses

The default trap notification IP is 0.0.0.0, meaning trap notifications have no set destination until a target IP is assigned, regardless of whether the traps themselves are enabled. Up to four target IP Addresses may be configured.

NOTE: The PC to which each target IP Address is assigned must have a MIB browser running in order to receive traps, regardless of whether the traps themselves are enabled.

## SNMP Trap Definitions

### Authentication Trap

The Authentication Trap is a standard, MIB-II compliant trap that sends notification whenever an SNMP request is made with an incorrect community string. It can be enabled or disabled.

### Fan Trap

The Fan Trap is an enterprise specific trap that sends notification whenever one of the four chassis fans experience a change in operational status. It can be enabled or disabled.

### Cold Start Trap

The Cold Start Trap (based on MIB-II standards) sends notification of both cold start (power up) and warm start (reboot or reset) occurrences. It can be enabled or disabled.

### Link Up/Down Trap

The Link Up/Down Trap is a standard MIB-II compliant trap that sends notification whenever a port changes operational status. It can be enabled or disabled.

### Module Present Trap

The Module Present Trap is an enterprise-specific trap that sends notification whenever an empty chassis slot is loaded with an interface module. It cannot be disabled.

### Module Removed Trap

The Module Removed Trap is an enterprise specific trap that sends notification whenever an interface module is either replaced with another interface module of a different model type, or removed from the chassis such that the slot is left vacant for 40 seconds or more. The trap cannot be disabled.

## Trap Notification

One trap notification will be sent to each target IP Address for every trap occurrence, meaning every time there is a change in operational status. For example, if a fan fails, each target IP Address gets one notice. However, if a line or equipment problem were to cause continual system reboot, each target IP Address would receive multiple trap notifications (one for each reboot).

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